

### **REMARKS/ARGUMENTS**

Claims 1-12 and 14 are pending in the present application. Claims 1, 6 and 8 have been amended by this Amendment. Claim 13 has been canceled without prejudice or disclaimer. New claim 14 has been added by this Amendment.

### **Allowable Subject Matter**

Applicants express their appreciation for the Examiner's indication that claims 7 and 13 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants believe that in light of the amendments and remarks made herewith that each of the claims pending in the present application is allowable.

### **Claim Rejections under 35 USC § 103**

Claims 1-6 and 8-12 stand rejected under 35 USC § 102(b) as anticipated by Kakuta et al. (WO 3081182, hereinafter "Kakuta", U.S. Patent Application Pub. No. 2007/0279044 to Kakuta is cited to below for convenience).

### **Discussion of Disclosed Embodiments**

The following descriptive details are based on the specification. They are provided only for the convenience of the Examiner as part of the discussion presented herein, and are not intended to argue limitations which are unclaimed.

Applicants' disclosed embodiments are directed to a magnetic field sensor comprising a sensor arrangement (H), which is supplied by a supply device (IH) and generates a sensor signal. An evaluation device (ADC, R) is fed the sensor signal and outputs a first output signal (AI). A

feedback device (RV) is fed the first output signal and controls the supply device (IH). The regulation of the control loop closed with the feedback device (RV) improves the noise behavior of the magnetic field sensor. The evaluation device (ADC, R) contains an analog-to-digital converter (ADC), which digitizes the sensor signal, and a computation device (R) connected downstream, which generates the first output signal.

### Arguments

Kakuta fails to disclose, teach or suggest “the evaluation device contains an analog-to-digital converter, which digitizes the sensor signal, and a computation device connected downstream, which generates the first output signal”, as expressly recited by Applicants’ independent claim 1.

Kakuta describes an angle determining apparatus. Detected signals, which are detected from eight Hall elements HE, respectively, are sequentially selected in a time division manner in an XY switching unit 2. (See Fig. 1 and col. 6, lines 6-8 of Kakuta). The XY switching unit 2 provides the detected signals to a modulation/drive unit 4, and the modulation/drive unit 4 provides four signals to a Differential Difference Amplifier (DDA) 6. The DDA 6 generates a signal sent to a P-to-P (peak-to-peak) detection unit 8. (See Fig. 1 of Kakuta).

The modulation/drive unit 4 performs bias direction switching processing for obtaining the detected signal X and the detected signal Y and processing for switching an extracting direction of a signal (Hall voltage). (See Figs. 1 and 4A-4B and col. 6, lines 33-36 of Kakuta). Each of the Hall elements thus provides a Hall voltage that has a positive or negative polarity, i.e., an analog signal. Kakuta explains at col. 6, lines 44-48 that the DDA 6 is a four input addition type amplifier. Fig. 6 of Kakuta shows the input signal (DDA INPUT) for the DDA 6.

The input signal DDA INPUT for the DDA 6 (i.e., the output signal from the modulation/drive unit 4) is thus an analog signal. Kakuta discloses at col. 7, lines 12-21 and Fig. 6 that the DDA 6 is designed to add the amplifier input voltages and, moreover, that the signal output from the DDA 6 is a signal obtained by amplifying the outputs of the Hall sensors at a set amplification factor X. Fig. 7 of Kakuta shows that the DDA output signal obtains different positive values and different negative values. Kakuta teaches at col. 7, lines 27-35 that the P-to-P detection unit 8 detects a peak value of the first phase signal and a peak value of the second phase signal and calculates a value between those peak values. The P-to-P detection unit 8 thus performs a subtraction. The DDA output signal (i.e., the input signal to the P-to-P detection unit 8) is thus also an analog signal, and the P-to-P detection unit 8 generates an analog signal.

The modulation/drive unit 4, the DDA 6 and the P-to-P detection unit 8 of Kakuta therefore each receive analog input signals and generate analog output signals. These three units 4, 6 and 8 do not generate a digital output signal. The modulation/drive unit 4 and the DDA 6 of Kakuta thus cannot create a digital signal from the Hall sensors as purported by the Examiner at page 4 of the Office Action. Kakuta thus fails to disclose, teach or suggest “the evaluation device contains an *analog-to-digital converter, which digitizes the sensor signal*, and a computation device connected downstream, which generates the first output signal”, as expressly recited by Applicants’ independent claim 1.

Furthermore, Kakuta teaches that the P-to-P detection unit 8 is connected on its output side via a sample-and-hold unit 16 and an operation amplifier 22 to the modulation/drive unit 4. (See Fig. 1 of Kakuta). Kakuta therefore does not disclose or suggest an analog-to-digital converter that digitizes the sensor signal and provides a closed loop which controls the modulation/drive unit 4. Kakuta thus fails to disclose, teach or suggest “the evaluation device

contains *an analog-to-digital converter, which digitizes the sensor signal, and a computation device connected downstream, which generates the first output signal*” and “*a feedback device, to which the first output signal is fed* and which controls the supply device such that the first output signal remains substantially constant”, as expressly recited by Applicants’ independent claim 1.

Independent claim 1 is accordingly deemed to be patentably distinct over the cited art for at least the foregoing reasons. Claims 2-7, which depend from independent claim 1, are deemed to be patentably distinct over the cited art for at least the same reasons as is claim 1, as well as on their own merits.

Independent claim 8 has been amended to include the features of now canceled claim 13, which was indicated by the Examiner as containing allowable subject matter. Independent claim 8 is accordingly deemed to be patentably distinct over the cited art for at least the foregoing reasons. Claims 9-12, which depend from independent claim 8, are deemed to be patentably distinct over the cited art for at least the same reasons as is claim 8, as well as on their own merits.

New independent claim 14 contains the features of original claims 1 and 7. As noted above, claim 7 contains allowable subject matter as indicated by the Examiner. Independent claim 14 is accordingly deemed to be patentably distinct over the cited art for at least the foregoing reasons.

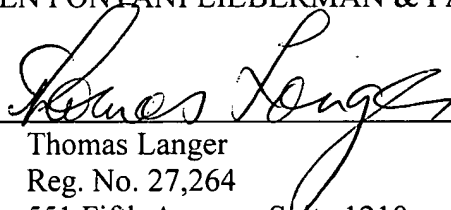
### CONCLUSION

This application is now deemed to be in condition for allowance, and early notice to that effect is solicited.

It is believed that no fees or charges are required at this time in connection with the present application. However, if any fees or charges are required at this time, they may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,  
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